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ABSTRACT

A project to help small independent liberal arts colleges integrate technology and the liberal arts in the undergraduate curriculum is considered in this newsletter issue. The first two stages of this project on Technology and the Liberal Arts, which is sponsored by the Council of Independent Colleges, are described, along with the progress of various colleges. Stage one is designed to raise awareness about technology, survey what liberal arts colleges are doing, work with a select number of colleges to develop course modules that integrate technology into the liberal arts, and disseminate information about technology and the liberal arts. Stage two focuses on developing entire courses and will involve up to 60 colleges in designing and implementing the teaching of technology as a core part of the general education program. Northwestern College (Iowa) is incorporating technology into an existing course and developing a new course devoted to the subject. Alaska Pacific University shifted the emphasis of an earth sciences course to technology, and Buena Vista College (California) is linked by telecommunications to world-wide data networks. Efforts by other colleges are briefly described. (SW)

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SMALL TALK

Quarterly News from the Nation's Small Independent Colleges Volume 2, Number 1, Spring 1986

TECHNOLOGY AND LIBERAL EDUCATION

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SMALL TALK

QUARTERLY NEWS FROM THE NATION'S SMALL INDEPENDENT COLLEGES VOLUME 2, NUMBER 1, SPRING 1986

TECHNOLOGY AND LIBERAL EDUCATION

Without question, technology has become a dominant force in our society. The evolution and rapid expansion of technology has resulted in the creation of vast, complex systems that affect the very way we live.

Recent technological advances have altered our lives in tangible and significant ways. Medicine, transportation, information gathering and sharing, agriculture—these are but a few of the disciplines in which technology has led recently to a complete recasting of man's previous understanding. Through further advances, this geometrical expansion of man's knowledge will undoubtedly continue.

What is technology? We use this definition: *Technology is a social process that employs scientifically and empirically based tools, techniques, knowledge, resources, and systems to affect the human environment and its organizations.*

If one observes the impact of technology across virtually all aspects of our lives, one quickly realizes that it is indeed a very powerful tool. It is too limiting, however, to think of it solely in that context. True, technology *is* a tool in the sense that it helps extend the human powers of perception and observation. But it is also a *mode of inquiry*—an action-oriented, interactive, problem-solving process that emphasizes such critical skills as quantitative reasoning, decision making, and the understanding of systems.

The rise of the technological society has special consequences for American higher education, and particularly the education of undergraduate students. As Edward Friedman of the Stevens Institute of Technology writes, students must learn to deal with "complex problems at the boundaries where technology and society interact." Indeed, as the CIC monograph *The New Liberal Learning: Technology and the Liberal Arts* observes, technology may provide the means for answering complex questions: by providing the "how to," technology can bridge the gap between the scientist's observation of "what is" and the humanist's vision of "what ought to be."

Because the technological methods and problem-solving techniques of the engineer are so much a part of our society, we need to educate our undergraduate students about them. This requires much more than simply making our students "computer literate." It is time for educators to rethink and refocus the traditional liberal arts curriculum to include the study of technology. In addition to introducing them to the traditional methods of inquiry of the social sciences, humanities, and natural sciences, we need to help students develop the skills of *technological* reasoning and decision making. This is important now, but it will become imperative as technology becomes an increasingly powerful force in society.

The integration of technology and the liberal arts in the undergraduate curriculum is a high priority of the Council of Independent Colleges. Under the auspices of several foundations and corporations, CIC is sponsoring a major project designed to help small independent liberal arts colleges institute curricular reform that responds to the challenges of our increasingly technological society.

At roughly the midpoint of this five-year project, this issue of *Small Talk* reports on CIC's project on "Technology and the Liberal Arts." Two articles describe Stages One and Two of the project, respectively. There are also reports on how various colleges are integrating technology into the liberal arts curriculum.

—Dr. Allen P. Splete
Executive Vice President, CIC
Director, Project on Technology and the Liberal Arts

CIC's Project on Technology and the Liberal Arts

STAGE ONE: RESEARCH AND PLANNING

CIC designed its project on Technology and the Liberal Arts with two goals in mind. First, CIC wanted to heighten the awareness of liberal arts faculty and administrators about technology and to emphasize its importance to the liberal arts curriculum. Second, the Council wanted to assist individual colleges in developing course modules that integrate the study of technology into the curriculum. CIC also wanted to publicize how liberal arts colleges were working to integrate technology and liberal education.

Work on Stage One of the project began in 1984, with funding provided by the Pew Memorial Trust, the Ford Foundation, and the Consortium for the Advancement of Private Higher Education (CAPHE). Stage One had four specific goals: 1) to raise awareness about technology, 2) to survey what liberal arts colleges are doing in this area, 3) to work with a select number of colleges to develop course modules that integrate technology into the liberal

—*See "Research," page 4.*

STAGE TWO: INTEGRATING THE STUDY OF TECHNOLOGY INTO THE CORE CURRICULUM

While Stage One of CIC's project involved colleges in developing course *modules* that incorporate the teaching of technology, Stage Two focuses on developing entire *courses*. Building on the accomplishments of Stage One, Stage Two will involve up to 60 colleges in designing and implementing courses that incorporate the teaching of technology as a core part of the general education program at liberal arts colleges.

Major funding for Stage Two has been provided by the AT&T Foundation and the Exxon Education Foundation. At this writing, several other corporations have also expressed interest in co-sponsoring this important work.

Stage Two got underway in February, when CIC mailed announcements of its second grant competition to presidents and academic deans of more than 720 small independent colleges. The competition requests that col-

—*See "Integrating," page 6.*

This issue of Small Talk *was made possible by grants from the Shell Companies Foundation and The New York Times Company Foundation.*

Technology and the Liberal Arts

MINI CASE-STUDY: NORTHWESTERN COLLEGE

Located in the upper reaches of western Iowa, Northwestern College occupies a campus of about 55 acres in rural Orange City (population roughly 3,500), about 45 miles north of Sioux City. The college offers undergraduate programs in the liberal arts and teacher education, and has a student body numbering about 900. Founded in 1882, the college is affilated with the Reformed Church in America.

Northwestern has a strong commitment to technological literacy. The college's definition of its liberal arts mission includes technology. In a statement paper on the subject, Vice President for Academic Affairs Harold Heie wrote: "We view an adequate understanding of our modern technological age to be an important aspect of liberal arts understanding." According to Dr. Heie, "Our long term approach to technological literacy will involve faculty in a variety of courses and disciplines incorporating appropriate technological issues into their respective courses."

Northwestern College's commitment to integrating technology and liberal education extends beyond its campus: the college has been designated the coordinating institution for technological literacy for the Colleges of Mid-America, a regional consortium of nine liberal arts colleges. In that role, Northwestern serves as a valuable resource for work in technological literacy at the other member colleges in the consortium.

The college was one of the ten winners in CIC's first grant competition in Technology and the Liberal Arts. Two Northwestern faculty members—psychology professor Dr. Wayne Norman and philosophy professor Dr. Gary Weaver—received a grant to develop modules that incorporate technology into an existing course and a new course that would be solely devoted to the subject.

Reflecting on his partnership with Dr. Norman, Dr. Weaver says, "We have found it quite helpful to work jointly on the project, as that provides some guidance and critique for each of us. I'd suggest that approach to other participants in the program."

In the fall of 1985, Professor Weaver offered two sections of a course in critical thinking that included a technology-focused module. The module introduced some basic technological concepts and methods, including risk analysis and decision making. While Dr. Weaver found that this was a good way to get students thinking about technology, he observed that "the modular approach suffers because the technology-related topics must compete with 'traditional' topics for the limited amount of time available in one course."

Northwestern professors use computer programs to help develop students' problem-solving and critical-thinking skills.

From the start, professors Weaver and Norman had intended to eventually develop courses that focused exclusively on technology. Using release-time provided under the CIC grant and by the college, both professors have developed such courses. Dr. Norman's course in *Physiological Psychology*, being offered this spring, examines the question "Are humans machines?," and aims to have students think critically about what it means to view humans as machine-like. Dr. Weaver developed a course on *Language and Logic*, also being taught this spring, which examines the relationships between formal logic, natural languages, and diverse information-processing machines. Dr. Weaver also prepared a module for an expanded course in the philosophy of science that examines the relationships between science, technology, and culture.

Because the various courses and modules within courses are either required for some majors or an important elective for others, a great number of students at Northwestern are currently being exposed to some aspect of technology.

Outside the classroom, professors Norman and Weaver are involved in disseminating information about their work in technological literacy—through seminars, workshops, and informal consultation—to their colleagues at Northwestern and to faculty and administrators of other members within the Colleges of Mid-America. Dr. Norman has also led a workshop on the role of technology in the social science curriculum for local high school teachers.

Next academic year, professors Norman and Weaver hope to introduce a comprehensive course, *Understanding Technology*. Among other topics, the course will discuss the history and development of technology, some of its basic concepts and methodology, and the social impact of technology.

"Wayne and I have both found the field of technology studies to be interesting and enjoyable," Dr. Weaver says. He adds: "It is also a field that involves increasing commitment on our part as we get into it more deeply."

"The City"

In Boston, a liberal arts course at *Emmanuel College* shows students how urban technology affects their lives. Taught jointly by a sociologist and an historian, "The City" first examines the history of worldwide urban development. In the second half of the course, students analyze construction projects through research and field visits.

With Boston as their laboratory, students in "The City" focus on the development of transportation systems. Studying specific construction sites, they consider the complex social, legal, logistical and political ramifications of mounting a major construction project in a congested urban area. They research how the project began, how it was planned, how it was funded, and the effects it will ultimately have on transportation in Boston. They're urged to analyze the inherent problems in such a project, and the effects decisions made now will have on the future. On site, the students learn how working drawings are translated into physical structures. They study how engineers solve unanticipated problems. Finally, students prepare reports that examine the historical, sociological, and technological aspects of the project.

Technology and the Liberal Arts

MINI CASE-STUDY: ALASKA PACIFIC UNIVERSITY

Alaska Pacific University occupies a campus of nearly 300 acres in suburban Anchorage, a city of nearly 250,000 people. Founded in 1959, the university served a total of 1200 students last term. Alaska Pacific has an endowment of $40 million, and recently completed construction of four new buildings. The university is affiliated with the Methodist Church.

The heart of Alaska Pacific's educational program is its core curriculum, a series of required 3-credit courses. With an emphasis on interdisciplinary study, the curriculum seeks to develop the student's view of the world as an interdependent community.

Dr. Richard L. Meyers, assistant professor of natural sciences at Alaska Pacific, teaches a course in the core curriculum called "The Natural Environment." Historically, "The Natural Environment" was based on the earth sciences and environmental science. Under a grant that he received in CIC's first "Technology and the Liberal Arts" grant competition, Dr. Meyers redesigned the course to shift its emphasis from the earth sciences and environmental science to technology.

First taught in the fall of 1985, the newly revised course focused on one major topic, telecommunications. Concentrating on one relatively narrow subject, Dr. Meyers believed, would help his students focus on technology's impact on their lives. "Telecommunications was selected," Dr. Meyers says, "because of its far-reaching impact on modern society and especially on Alaska during the last decade."

In the first two weeks of the course, students were introduced to general issues of science and technology. The course narrowed over the next two weeks to cover telecommunications and the scientific principles of communication technology. Then, over the next six weeks, students examined the interrelations between the scientific, technological, and social aspects of telecommunications. The course concluded with a review of current issues in telecommunications, including the debate over the Strategic Defense Initiative.

Dr. Meyers brought telecommunications to life for his students through on-site visits to facilities of Alascom, a major telecommunications corporation located in Anchorage. Sharing their expertise about satellite technology, Alascom engineers helped the class understand the many effects that particular technology has on their daily lives. This cooperation proved invaluable. "The arrangement between APU and Alascom was in many ways responsible for the success of the course," Dr. Meyers says. "I think our course might be a good model for other schools that would like to work cooperatively with a high-tech industry."

Did the course improve student understanding of technology? Yes, to a significant extent. In course evaluations, for example, one student wrote, "I have become more aware of how technology and science influence the world around me. I've become more concerned about future advances and how they will affect me."

Dr. Meyers reports that it is an uphill battle to involve other Alsaka Pacific faculty in integrating technology with the liberal arts. "While there has been some faculty interest," he says, "I haven't been very successful in getting other faculty members to make strong commitments to the program." Dr. Meyers hopes to generate faculty interest over the coming months by urging faculty to attend upcoming seminars and conferences in technology.

Using his experience in the newly revised course on "The Natural Environment," Dr. Meyers plans to continue his work to incorporate an understanding of technology into Alaska Pacific's liberal arts curriculum. Among several possibilities, he is considering a technology seminar and a course devoted solely to technology. Through on-campus faculty development programs and by sponsoring faculty attendance at off-campus conferences, Dr. Meyers will also continue to involve other faculty in this important work.

High Technology in the Cornfields

A small college in rural northwest Iowa has one of the most technologically sophisticated campuses in the United States. Buena Vista College, in Storm Lake, has a broadband telecommunication system that not only links all parts of the campus, but also connects the college via satellite to data networks around the world. The $1 million system is one of the first of its kind in the country and has been compared to one being developed at UCLA.

Like many of its counterpart small liberal arts colleges, Buena Vista recently decided to limit its student enrollment—at a cap of 950—to allow the college to maintain an outstanding student/faculty ratio and high educational quality. The new telecommunications system will help further that goal by increasing the educational resources available to professors and students. Through the system, students and faculty will have instant access to all kinds of information from sources around the world. Experts in all fields will be able to "visit" the campus via satellite teleconferencing. And, as one Buena Vista student said, technology in the classroom "brings textbooks to life."

In this "resource room" at Buena Vista College, students can tap into informational resources worldwide.

Moreover, by making technology a daily part of campus life, Buena Vista prepares its students for life in our increasingly technological society. "We want to turn out graduates who are not only aware of, but can actually use technology to make decisions," says the college's president, Keith G. Briscoe. "I didn't believe that would happen unless we had the technology. My feeling was that we could jump ahead a decade by introducing the technology first."

Lonnie Overstreet, Springfield Newspapers

Ann Pastojevich, an architecture student at Drury College (Mo.), in the College's new computer-assisted design laboratory. The equipment permits students to design three-dimensionally, and to visually place themselves inside the building they are designing—walking down hallways and through doorways. "Permitting one to test the plan before the first 2 × 4 has been placed means better, cost-efficient design," says Jay Garrott, coordinator of the architecture program.

"Research," from page 1

arts curriculum, and 4) to disseminate information about technology and the liberal arts.

FACULTY INSTITUTES

In June of 1984, more than 300 faculty from liberal arts colleges attended four CIC regional Faculty Institutes on "Technology and the Liberal Arts." Designed to inform faculty about technology, the institutes included discussions of technological reasoning as well as demonstrations of existing curricula that incorporated technology. Similar discussions also took place at CIC's 1984 Deans Institute and 1985 Presidents Institute.

TECHNOLOGY TASK FORCE

In the fall of 1984, a CIC Planning Task Force on Technology and the Liberal Arts was established. This panel included distinguished engineering educators (Dr. Edward Friedman of the Stevens Institute of Technology; Dr. J. Paul Hartman of the University of Central Florida; Dr. Margaret MacVicar of MIT) as well as leading educators from other disciplines (Dr. Louis Almen, president of Thiel College; Dr. Edie Goldenberg, associate professor of political science and public policy at the University of Michigan; Dr. Allan Pfnister, vice chancellor for academic affairs at the University of Denver; and Dr. Stephen Weiner, provost and dean of the faculty at Mills College.) Dr. John C. Truxal of SUNY/Stony Brook also assisted in the report. This panel contributed significantly to the project by helping to develop its scope and direction.

FIRST GRANT COMPETITION

In October, 1984, CIC announced a grant competition to identify colleges that would receive funds to "develop and test new curricular responses to help students understand technological methods and issues."

As part of the competition, CIC sponsored two workshops in the fall of 1984 on Technological Literacy, attended by 90 faculty with strong interest in technology and the liberal arts; they represented nearly 60 liberal arts colleges. While fine-tuning their applications in the grant competition, workshop participants delved into the issues of technology and the liberal arts in further depth. Workshop presenters included a number of faculty from small liberal arts colleges who were involved in teaching technology; their sessions prompted much discussion of the opportunities and problems faculty face in developing these kinds of courses.

In December, 1984, ten colleges were selected to receive grants for developing courses or modules in technology and the liberal arts. The ten grant winners included:

Alaska Pacific University, to incorporate the study of technology in a course called "The Natural Environment." (See story on page 3.)

Bethel College (Kans.), to introduce faculty and students to technological reasoning and problem solving.

Carlow College (Pa.), for a required freshman course, "Tools for Technology: A Hands-on Approach."

Catawba College (N.C.), for junior-level courses in the understanding of technology, using case studies.

College of St. Catherine (Minn.), for a course in biomedical technology.

Elmira College (N.Y.), for course modules in information theory and simulation modeling.

Emmanuel College (Mass.), for an interdisciplinary course, "The City." (See box, page 2.)

Marymount Manhattan College (N.Y.), for an "Introduction to Technology" course.

Northwestern College (Iowa), for two courses: "Understanding Technology" and "Physiological Psychology." (See story on page 2.)

Texas Lutheran College, for a broad-based interdisciplinary course.

SURVEY OF COURSES

During the same period (fall 1984) CIC engaged in two closely related research projects. The first, a survey sent to liberal arts colleges nationwide, requested lists of courses that might fall under the category "Technology and the Liberal Arts." The questionnaire's authors purposely did not define technology, in order not to skew the results. Nearly 200 colleges participated in the survey, which was completed in June, 1985.

"As might be expected," says Project Director Dr. Allen P. Splete, "the majority of courses that were reported dealt with computers, or with what might be called specific disciplinary technologies—communication technology, medical technology, and so on. A few courses dealt broadly with technology—"Science, Technology, and Society," for example. Many courses sought to integrate technology with the liberal arts: for example, courses in the humanities and social sciences which dealt with engineering concepts."

The resulting "Survey of Curriculum Resources" was mailed to academic deans of liberal arts colleges in July, 1985. This compilation was an important resource because it set up a network through which deans and faculty could contact colleagues who might be working on similar courses, or in similar disciplines.

SHORT TAKES: HOW OTHER COLLEGES ARE LINKING TECHNOLOGY AND THE LIBERAL ARTS

■ An interdisciplinary course called "The Bridge" helps liberal arts students at *Lafayette College* in Easton, Pennsylvania understand the *process* of engineering. Designed for the nontechnical student, the course uses bridges to illustrate important engineering concepts, terminology, and ideas—and is in itself intended to serve as a bridge between engineering and the liberal arts.

Other interdisciplinary courses at Lafayette include "Issues in Health Care in a Technological Society," taught by professors of physics and religion. Covering many applications of technology, the course explores some of the implications of technological change in health care. Professors of physics and history teach a course called "Science and Diplomacy of the Bomb," which focuses on the political and diplomatic—as well as scientific and technological—aspects of nuclear weaponry.

■ One of the advantages of a small college is the favorable teacher-to-student ratio. When it comes to computers, many small colleges provide a similarly favorable ratio. At *McPherson College* (Kansas), for example, there is one computer for every ten students. What's more, the computers are all linked to a campus-wide network, and there are work stations in every major building on campus, including dormitories. The high computer-to-student ratio provides "a level of computer accessibility which few institutions can offer their students," says McPherson professor Robert Ward, head of the college's computer science department.

■ Like many other liberal arts colleges, *Catawba College* (N.C.) has heretofore not offered many courses that specifically address technological issues, particularly in an interdisciplinary approach. Yet, as a Catawba administrator says, "We believe the greatest challenges facing man are those associated with the complex interrelations of science, society, and the individual." The college's ultimate goal is to ensure that all of its students have a strong understanding of technology and the way it shapes their lives.

Catawba was one of the grant winners in Stage One of CIC's project on Technology and the Liberal Arts. The college is using its grant to develop courses that will approach the general issues of science, technology and society. For example, a case-study-based course taught by an historian will examine an engineering issue of local concern (e.g., retrofitting the college's heating system, or using public funds to upgrade North Carolina's rail system). The course will focus on the student's ability to solve problems, and understand how decisions affect larger, global issues. Another course, taught by a biologist, focuses on issues of human population, natural resources and their depletion, and the environment.

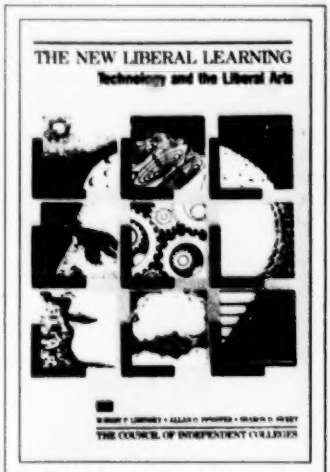
■ In Lincoln, Nebraska, Union College has become the first college in the nation to put a computer terminal in every dormitory room on campus. The terminals are linked to a campus computer system, through which students can do word processing and spread-sheet analysis. Moreover, they also have round-the-clock access to the college's library catalog, which is part of the campus system, and to the 95% of the library's holdings which have been put into machine-readable form.

■ Technology literally provides the link for liberal arts students at *Houghton College* in New York State, where a microwave telecommunications system connects the college's two campuses, 65 miles apart. Using the link-up, faculty simultaneously teach students at both campuses. The class originates at one campus and is broadcast to a classroom on the other campus. The sophisticated system allows students in the second classroom to join in discussions and ask questions of the instructor.

Houghton's curriculum also reflects increasing interest in technology. Dr. Irmgard Howard, associate professor of chemistry, offers a course entitled "Impact of Science on Society," which looks at the complexities—and limitations—of technology, from historical, social, political, economic, medical and even spiritual perspectives. Dr. Howard's intent is to help liberal arts students prepare for life in a "scientophobic age," in which even the non-scientist is unwittingly called on to use science and technology in solving problems and making decisions.

■ "Science, Technology, and the Liberal Arts" was the focus of the interim term this past January at *Bethany College* in Kansas. Through lectures and discussions, students examined the impact of science and technology. An interdisciplinary seminar, "The Effect of Science and Technology on Society—Hopes and Fears," focused on "the conflicts between improving the quality of life and the desire to respect free choice."

■ Through a grant from CIC, *Carlow College* in Pittsburgh sponsors lunchtime lectures that review technology and the liberal arts. Topics include "Is technology properly a part of liberal learning?" and "Can the liberal arts address problems at the boundary where technology and society interact?"



Jim Salmon

The New Liberal Learning: Technology and the Liberal Arts is a new monograph published by the Council of Independent Colleges. The 68-page paperback includes two essays that set forth the intellectual rationale for integrating liberal education and the study of technology. In addition to presenting the case for "the new liberal learning," the monograph includes case studies of how three leading colleges are incorporating the study of technology into their curricula, and concludes with an extensive bibliography of readings in the field.

Copies of the monograph are available from the Council of Independent Colleges, Publications Department, One Dupont Circle, Suite 320, Washington, D.C. 20036. The cost per copy is $10.00, postage and handling included.

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"Integrating," from page 1

leges develop significant core general education courses on technology that will be required for the baccalaureate degree. Deadline for this second grant competition was April 11, 1986; grant winners will be selected by May 2. Based on their proposals, up to 20 colleges will be selected in each of the next three years (1986, 1987, 1988) to participate in subsequent project activities.

SUMMER INSTITUTES

Each July of the three project years, three-person teams from twenty colleges selected in the competition—perhaps consisting of two faculty members and an academic dean—will attend an intensive two-week Faculty Institute on Technology and the Liberal Arts. There, they will experience technology both as a student and as an instructor. Led by some of the top engineer-educators in the country, the institutes will provide assistance to the teams in the development of their courses in technology. This year's Institute, the first, will take place July 7–18 at Smuggler's Notch in Vermont.

Moreover, liberal arts faculty and administrators at the institutes will learn the *engineer's* methods of analysis, decision making, and problem solving. With funding from the Exxon Education Foundation, a cadre of engineering educators is currently developing courses for this July's institute. Written for the non-scientist, the modules will focus either on a basic concept of technology or on a specific technological artifact or system.

FACULTY COLLABORATIVES

One of the greatest problems in developing innovative projects for faculty at small independent colleges—such as CIC's project on Technology and the Liberal Arts—is the need for faculty to find and share encouragement with their colleagues. "Too often," says Project Director Allen Splete, "innovative and creative faculty feel alone in their dreams and aspirations."

To further encourage colleagueship and sharing of ideas, institute participants will be able to avail themselves of another base of support: two faculty workshops that will be held later in the year. "These 'Faculty Collaboratives' will provide a forum for those who are developing courses in technology to listen to their colleagues and swap ideas with them," Splete says. "Again, the emphasis is on developing an effective support network for faculty who wish to pursue the study of technology."

Following each institute, the teams will be encouraged to use their colleagues from other colleges as a network for assistance in developing courses. CIC will compile a list of experts in technology to serve as consultants to the colleges through CIC's National Consulting Network for Liberal Arts Colleges.

Later this fall, after the first group of twenty colleges has attended its first institute and is well on the way to developing general education courses on technology, CIC will disseminate the institute curricula. The course modules currently being developed by engineering educators and synopses of the 20 curriculum development projects will be distributed to the nation's liberal arts college community, as well as to the media, corporations and foundations, and other groups within and outside higher education.

The process described above will be repeated in 1987 and 1988 for two additional groups of twenty colleges. "The culmination of each cycle will result in a core group of twenty college teams that will serve as models and sources of encouragement and advice for other colleges in developing their own courses," says Project Director Splete. "Also, each year another five teaching modules in the field will be developed and introduced at the summer institute."

"In the end," he continues, "we will have sixty experienced college teams and fifteen exemplary course modules on technology that will serve as a significant base for the inclusion of technology as part of the curriculum in many of the nation's liberal arts colleges."

LOOKING AHEAD

The first stages of CIC's project on Technology and the Liberal Arts—Stages One and Two—have as their goal the integration of the study of technology into liberal arts curricula. Beyond that, however, CIC envisions another purpose of the project: introducing the *methodology* of technology as part of problem analysis and solving in "traditional" science and humanities courses.

"The very existence of our model enhances the prospect of wider application in liberal arts disciplines," says Allen Splete. "With encouragement and some incentives, the faculty member might use methodology not usually associated with the humanities or social sciences to address a problem or issue in an existing course."

"When this goal is achieved," he continues, "the program will have gone full circle, from technology as a course of study in general education to technological *methodology* as an *approach to study* in individual disciplines. This is precisely the integration we are after in the long run, and raises technology to the level of importance we think it warrants in this technological society of ours."

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